

TE-6300 Series Temperature Sensors

Product Bulletin

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Introduction

The TE-6300 Temperature Sensor line provides economical solutions for a wide variety of temperature sensing needs, including wall-mount, outdoor-air, duct, strap-mount, well-insertion, duct-averaging, and VAV Modular Assembly (VMA) flange-mount duct-probe applications. The TE-6300 line offers both a metal and a plastic enclosure for the most popular models.

Sensors are available in the following types:

- 1k ohm thin-film nickel
- 1k ohm nickel averaging
- 1k ohm thin-film platinum
- 100 ohm platinum equivalent averaging
- 1k ohm platinum equivalent averaging
- 2.2k (2,252) ohm thermistor
- 10k ohm thermistor, Johnson Controls® Type II

Features and Benefits

Each sensor is packaged with the necessary mounting accessories to maximize ordering and installation ease and to reduce both commissioning time and cost.

- **Full Line of Versatile Sensors**—Supports all your temperature sensing needs from a single supplier: wall-mount, outdoor-air, duct, duct-averaging, strap-mount, well-insertion, and flange-mount duct-probe.
- **Single Assembly Ordering**—Simplifies ordering; provides a complete assembly in one box.
- **Models Featuring an Integral National Pipe Thread (NPT) Adaptor**—Increase sensor connection strength, which eliminates the need for a special adaptor.

Figure 1: TE-6300 Series Temperature Sensors



- **Models with a Stainless Steel Sensor Probe**—Protect the sensor while increasing corrosion resistance.
- **Metal Enclosure (TE-63xxE, TE-63xxM, and TE-63xxV Models)**—Meets plenum requirements.
- **Models Featuring a Retainer for the Sensor Holder**—Allow you to lock the sensor holder into the conduit box.
- **Brushed Stainless Steel Mounting Plate**—Offers a durable, aesthetically pleasing design.
- **Low Profile Flush Mount Design (TE-63xxF Models)**—Provides a tamper-proof installation ideally suited for schools, sporting complexes, retailers, prisons, and more.

Product Overview

IMPORTANT: The TE-6300 Series Temperature Sensors are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the temperature sensor could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the temperature sensor.

IMPORTANT : Le TE-6300 Series Temperature Sensors est destiné à transmettre des données entrantes à un équipement dans des conditions normales de fonctionnement. Lorsqu'une défaillance ou un dysfonctionnement du temperature sensor risque de provoquer des blessures ou d'endommager l'équipement contrôlé ou un autre équipement, la conception du système de contrôle doit intégrer des dispositifs de protection supplémentaires. Veiller dans ce cas à intégrer de façon permanente d'autres dispositifs, tels que des systèmes de supervision ou d'alarme, ou des dispositifs de sécurité ou de limitation, ayant une fonction d'avertissement ou de protection en cas de défaillance ou de dysfonctionnement du temperature sensor.

All TE-6300 Series Temperature Sensors are two-wire, passive, resistance-output devices.

TE-63xxA Models

The TE-63xxA (adjustable length) models:

- provide a thermoplastic mounting flange and gland nut to adjust the length of the probe
- include two hex-head self-drilling screws for mounting
- come equipped with a 10 ft (3 m) plenum-rated cable with 1/4 in. (6.35 mm) internal thread insulated quick-connect terminations on leads

TE-63xxE Models

The TE-63xxE (economizer mount) models:

- provide a stainless steel mounting flange
- include two hex-head self-drilling screws for mounting
- meet UL 1995 plenum use requirements

TE-63xxF Models

The TE-63xxF (flush mount) models:

- provide a low profile when installed in an electrical box
- thermally isolate sensor from the wall with a foam pad
- offer a rugged stainless steel cover
- provide 22 AWG (0.6 mm diameter) lead wires with low voltage installation

TE-63xxM Models

The TE-63xxM (metal enclosure) models:

- come with a corrosion-protected steel enclosure with a 0.88 in. (22 mm) hole for a 1/2 in. (12.7 mm) conduit fitting
- include two hex-head self-drilling screws for mounting the duct and duct-averaging models
- offer either a direct-mount or 1/2-14 NPT threaded well sensor holder for mounting in TE-6300W Series Thermowells (well models; order the thermowell separately)
- provide optional well sensor holders (order separately) to mount duct models in thermowells
- meet UL 1995 plenum use requirements
- offer an optional accessory kit (order separately) to replace plastic hole plug and wiring bushing to meet International Mechanical Code (IMC) requirements

TE-63xxP Models

The TE-63xxP (plastic enclosure) models:

- provide a thermoplastic conduit box with 1/2-14 internal NPT for connecting to conduit
- provide aluminum mounting plate and 1/2-14 internal NPT hub mounting options for the duct and duct-averaging models
- use the 1/2-14 internal NPT to mount the outdoor air models directly to rigid conduit
- include sensor holders to mount duct models in thermowells (order thermowell separately)
- offer an optional accessory metal cover and gasket kit (order separately) to replace the plastic cover to meet UL 1995 plenum use requirements
- include a replaceable sensing probe on duct-probe, outdoor-air, and well-insertion models

TE-63x4P Wall Mount Models

The TE-63x4P (plastic enclosure) models:

- come with a white thermoplastic ventilated cover with a brushed aluminum face plate and a steel mounting plate for surface mounting
- include faceplates for both horizontal and vertical mounting
- offer an accessory mounting kit for mounting to a standard electrical box
- offer optional covers

TE-63xS Models

The TE-63xS (strap-mount) models:

- provide a 1/4 in. (6.35 mm) diameter stainless steel probe without an enclosure
- include three cable ties for mounting to pipe up to 2-5/8 in. (67 mm) in diameter
- come equipped with a 10 ft (3 m) plenum-rated cable
- meet UL 1995 plenum use requirements
- offer an accessory mounting kit for mounting to a pipe up to 11 in. (280 mm) in diameter

TE-63xxV Models

The TE-63xxV (VAV flange mount) models:

- provide a stainless steel mounting flange with two hex-head self-drilling mounting screws
- come equipped with a 10 ft (3 m) plenum-rated cable with 1/4 in. (6.35 mm) internal thread insulated quick-connect terminations on leads
- meet UL 1995 plenum use requirements

Additional Product Information

See Figure 2 for nickel and platinum sensor Resistance/Temperature (R/T) response characteristics. See Table 1 for all sensor Temperature/Resistance values.

Note: Figure 2 shows 1k ohm platinum sensor characteristics. For 100 ohm platinum sensor characteristics, divide the resistance value by 10.

See Figure 3 for 2.2k and 10k ohm thermistor sensor R/T response characteristics.

Figure 2: Nickel and Platinum Temperature Response

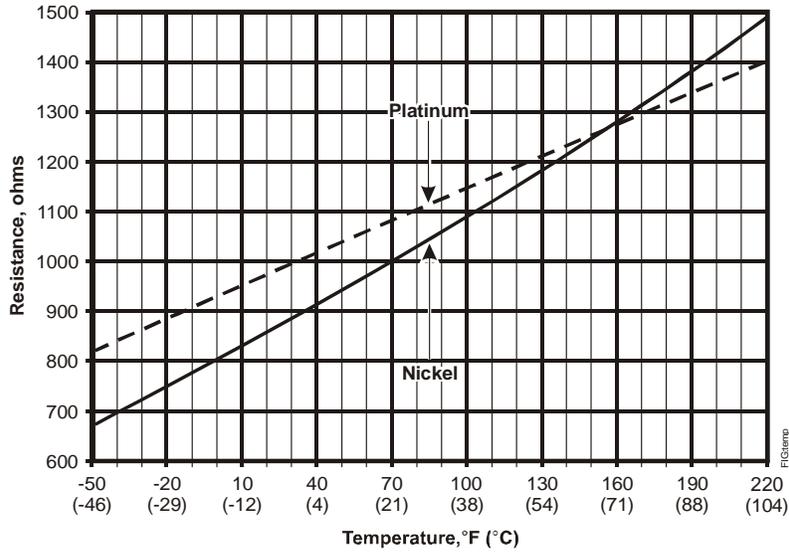


Figure 3: Thermistor Temperature Response

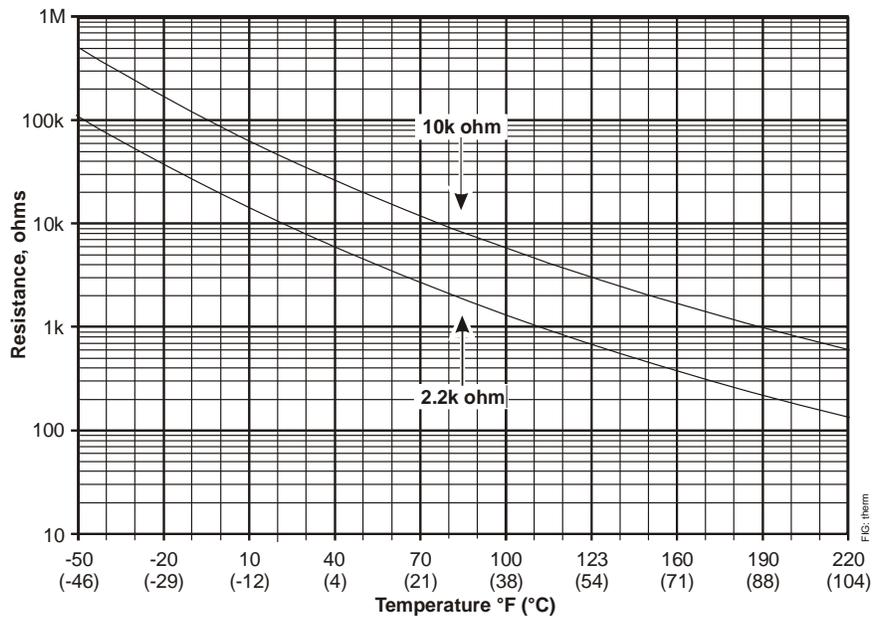


Table 1: Nominal Values for: Nickel (Ni), Platinum (Pt)¹, and Thermistor Sensors

Temperature		Resistance (ohms)			
°F	°C	1k Ni	1k Pt ¹	Thermistor	
				2.2k	10k
-50	-46	674	821	109,905	489,981
-40	-40	699	843	75,487	366,185
-30	-34	725	865	52,584	233,990
-20	-29	751	887	37,123	165,085
-10	-23	777	908	26,544	117,978
0	-18	803	930	19,210	85,349
10	-12	830	952	14,063	62,464
20	-7	858	974	10,408	46,221
30	-1	885	996	7,783	34,562
40	4	914	1,017	5,879	26,103
50	10	942	1,039	4,482	19,903
60	16	971	1,061	3,449	15,313
70	21	1,000	1,082	2,676	11,883
80	27	1,030	1,104	2,094	9,298
90	32	1,060	1,125	1,651	7,333
100	38	1,090	1,147	1,312	5,827
110	43	1,121	1,168	1,050	4,663
120	49	1,152	1,190	846	3,757
130	54	1,184	1,211	686	3,048
140	60	1,216	1,232	560	2,488
150	66	1,248	1,254	460	2,043
160	71	1,281	1,275	380	1,687
170	77	1,314	1,296	315	1,401
180	82	1,348	1,317	263	1,170
190	88	1,382	1,339	221	982
200	93	1,417	1,360	186	828
210	99	1,452	1,381	158	701
220	104	1,487	1,402	134	597

1. For 100 ohm platinum sensors, divide resistance values by 10.

Applications

Averaging Sensing

Series-parallel wiring arrangements of four (2 x 2), nine (3 x 3), sixteen (4 x 4), or more sensors provide an average temperature reading in an area or large duct when one sensor cannot provide a representative reading. (See Figure 4.)

A series-parallel arrangement requires the same number of parallel-connected sensors as there are series-connected sensors. For example:

- with four sensors, connect two parallel legs with two sensors in series in each leg
- with nine sensors, connect three parallel legs with three sensors in series in each leg

All sensors in a series-parallel network must be of the same sensor type and value. For example, use all 100 ohm platinum or all 1k ohm nickel sensors.

Figure 4: Nine-Sensor Series-Parallel Wiring

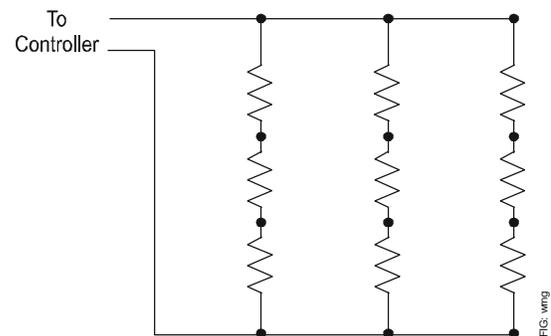
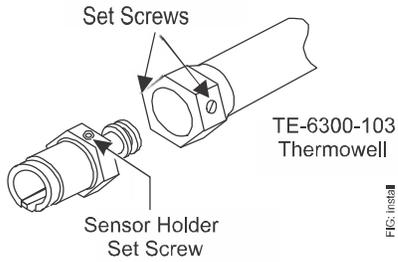


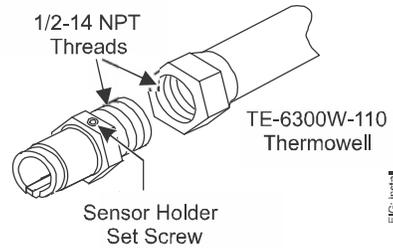
Figure 5 through Figure 8 illustrate installation of sensor holders and well adaptors.

Figure 5: Installing the TE-63xAP-1 Sensor Holder



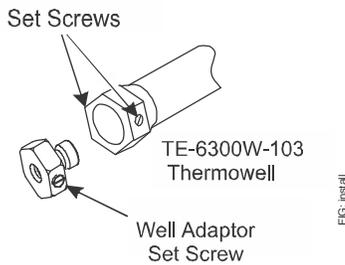
- sensor model TE-63xAP-1
- threadless sensor holder/well adaptor
- 6 in. (150 mm) probe

Figure 7: Installing the TE-63x2P-1 Sensor Holder



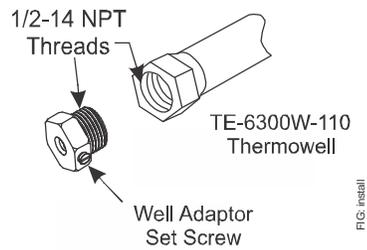
- sensor model TE-63x2P-1
- 1/2-14 NPT threaded sensor holder/well adaptor
- 8 in. (200 mm) probe

Figure 6: Installing the TE-63xAM-1 Well Adaptor



- sensor model TE-63xAM-1
- threadless well adaptor
- 6 in. (150 mm) probe

Figure 8: Installing the TE-63x2M-1 Well Adaptor



- sensor model TE-63x2M-1
- 1/2-14 NPT threaded well adaptor
- 8 in. (200 mm) probe

Table 2: TE-6300 Series Temperature Sensor Applications (Part 1 of 2)

Application	Nominal Probe Length, in. (mm)	Sensor Type	Application Notes
Duct Probe	2 (51) 4 (102) 6 (152) 8 (203) 12 (305) 18 (457)	1k ohm thin-film nickel 1k ohm thin-film platinum 2.2k ohm thermistor 10k ohm thermistor type II	<ul style="list-style-type: none"> • Ideal in freezer lockers or for mounting outside of the sensed area. • Available with plastic enclosure, metal enclosure, flange mount, or with mounting bracket for adjustable length. • Use TE-63xxE, TE-63xxM, or TE-63xxV models for plenum applications. • Use TE-6300-613 Accessory Kit with TE-63xxM models to meet IMC requirements. • Use TE-6001-13 Metal Cover and Gasket Kit with TE-63xxP models to meet UL 1995 plenum requirements. • Order an optional TE-63xxP model accessory: 12 in. (300 mm) probe.
Duct-Averaging Element	8 ft (2.4 m) 10 ft (3 m) 17 ft (5.2 m) 20 ft (6.1 m)	1k ohm nickel wire 100 ohm platinum equivalent wire 1k ohm platinum equivalent wire	<ul style="list-style-type: none"> • Use to sense duct temperature where stratification can occur, such as mixed air ducts. • Duct-averaging models come in three styles: plastic enclosure, metal enclosure, or flange mount. • Use about 1 ft (0.3 m) of sensor per sq ft (0.09 m²) of duct cross section. • Use a series-parallel sensor network to cover larger ducts. • Use a TE-6001-8 Element Holder (recommended) when installing an averaging sensor in a duct. • Use TE-63xxM or TE-63xxV models for plenum-rated applications. • Use TE-6300-613 kit with TE-63xxM models to meet IMC requirements. • Use the TE-6001-13 Metal Cover and Gasket Kit with TE-63xxP models to meet UL 1995 plenum requirements.
Outdoor Air	3 (76)	1k ohm thin-film nickel 1k ohm thin-film platinum 2.2k ohm thermistor 10k ohm thermistor, type II	<ul style="list-style-type: none"> • Use to sense outside ambient temperature to determine efficient heating and cooling strategies. • Mount the sensor out of direct sunlight and away from exhaust vents or equipment that can cause inaccurate temperature sensing.
Strap-Mount	3 (76)	1k ohm thin-film nickel 1k ohm thin-film platinum 10k ohm thermistor, type II	<ul style="list-style-type: none"> • Clamp the probe directly to a pipe or the device to be sensed. • Mount the probe away from fans or radiant heat that can affect measurement of the sensed device. • Use for plenum applications. • Order an accessory mounting kit or use readily available hardware for pipe up to 11 in. (280 mm) in diameter.
Wall Mount	N/A	1k ohm thin-film nickel 1k ohm thin-film platinum 2.2k ohm thermistor	<ul style="list-style-type: none"> • Use to sense room or space temperature. • Order an accessory cover with a thermometer or to match the style of existing installations. • Mount the sensor on an inside wall, out of direct sunlight and away from radiant heat.
Wall Plate Flush Mount	N/A	Flush mount 1k ohm nickel sensor Flush mount 1k ohm platinum sensor Flush mount 10k ohm NTC sensor	<ul style="list-style-type: none"> • Do not install the flush mount sensor in temperatures beyond 0 to 40°C. • Use copper conductors only. Refer to installation diagrams for recommended wiring lengths.

Table 2: TE-6300 Series Temperature Sensor Applications (Part 2 of 2)

Application	Nominal Probe Length, in. (mm)	Sensor Type	Application Notes
Well Insertion Probe	6 (152) 8 (203)	TE-63xxM 1k ohm thin-film nickel 1k ohm thin-film platinum 2.2k ohm thermistor 10k ohm thermistor type II	<ul style="list-style-type: none"> • Metal enclosure. • Mount the thermowell at an angle so condensation runs out of the well. If not possible, seal the well adaptor and wiring end of the sensor probe with (room temperature vulcanization) RTV silicone sealant. • Use TE-63xxM models to meet UL 1995 plenum use applications. • No separate well adaptor to order when using recommended thermowell and sensor model combinations. • Threaded sensor holder has 1/2-14 NPT threads; threadless holder accommodates set screw-type wells. • Order TE-63x2M-1, which includes a 1/2-14 NPT adaptor for TE-6300W-110, or retrofit applications of WZ-1000-2 and WZ-1000-4 Thermowells. • Order TE-63xAM-2 for use with direct-mount thermowells TE-6300W-101 and TE-6300W-102. • Order TE-63xAM-1, which includes a threadless adaptor for retrofit applications of TE-6300W-103 and WZ-1000-5 Thermowells. • Order compatible thermowells using Table 4 and Table 5.
		TE-63xxP 1k ohm thin-film nickel 1k ohm thin-film platinum 2.2k ohm thermistor	<ul style="list-style-type: none"> • Plastic enclosure. • Mount the thermowell at an angle so condensation runs out of the well. If not possible, seal the sensor holder and the wiring end of the sensor probe with RTV silicone sealant. • Use TE-6001-13 Metal Cover and Gasket Kit with TE-63xxP models to meet UL 1995 plenum requirements. • Use the accessory 12 in. (305 mm) probe with the TE-63xxP Sensor in longer wells. • No separate well adaptor to order when using recommended thermowell and sensor model combinations. • Threaded sensor holder has 1/2-14 NPT threads; threadless holder accommodates set screw-type wells. • Order TE-63x2P-1, which includes a 1/2-14 NPT adaptor for TE-6300W-110, or retrofit applications of WZ-1000-2 and WZ-1000-4 Thermowells. • Order TE-63xAP-1, which includes a threadless adaptor for TE-6300W-103 or retrofit applications of WZ-1000-5 Thermowells. • Order compatible thermowells using Table 4 and Table 6.

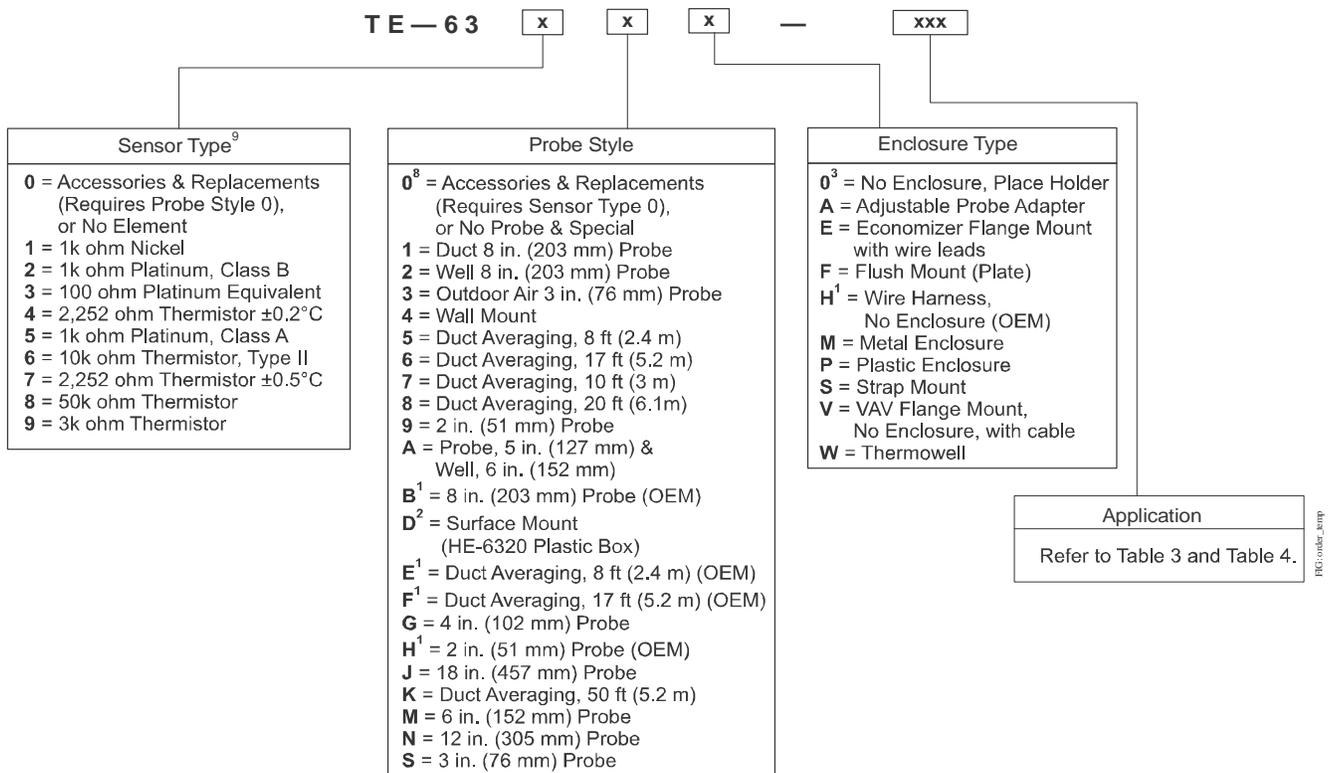
Ordering Information

To order a TE-6300 Series Temperature Sensor, contact the nearest Johnson Controls representative. Specify the desired sensor product code number from Table 3 and accessories from Table 4, depending on the model.

Note: Use the TE-63xxE, TE-63xxM, or TE-63xxV model to meet plenum requirements where UL1995 rating is accepted, or replace the existing plastic cover on the TE-63xxP models with the TE-6001-13 Metal Cover and Gasket Kit.

Use the TE-63xxM model and a TE-6300-613 Accessory Kit to replace the plastic bushing to meet International Mechanical Code (IMC) requirements.

Figure 9: Ordering Template



Note: Not all possible combinations are available. See Table 3 for available models.

Table 3: Product Ordering (Part 1 of 2)

Sensor	Mounting Style	Probe Length, in. (mm)	Product Code Number	
Nickel (1k ohm)	Adjustable	8 (203)	TE-6311A-1	
	Averaging ¹	8 ft (2.4 m)	TE-6315M-1	
			TE-6315P-1	
			TE-6315V-2	
		17 ft (5.2 m)	TE-6316M-1	
			TE-6316P-1	
			TE-6316V-2	
	Duct	4 (102)	TE-631GM-1	
		8 (203)	TE-6311M-1	
		18 (457)	TE-631JM-1	
	Flange (VAV)	4 (102)	TE-631GV-2	
		8 (203)	TE-6311V-2	
	Flush	N/A	TE-6310F-0	
			TE-6310F-1	
	Outdoor air	3 (76)	TE-6313P-1	
	Strap-mount	3 (76)	TE-631S-1	
	Wall ²	N/A	TE-6314P-1	
	Well	6 (152)	TE-631AM-1 ³	
			TE-631AM-2	
			TE-631AP-1	
8 (203)		TE-6312M-1		
		TE-6312P-1		
Platinum (1k ohm)	Adjustable	8 (203)	TE-6351A-1	
	Duct	4 (102)	TE-635GM-1	
			TE-6351M-1	
		8 (203)	TE-6351P-1	
	18 (457)	TE-635JM-1		
		Flange (VAV)	4 (102)	TE-635GV-2
			8 (203)	TE-6351V-2
	Flush	N/A	TE-6350F-0	
			TE-6350F-1	
	Outdoor air	3 (76)	TE-6353P-1	
	Strap-mount	3 (76)	TE-635S-1	
	Wall ²	N/A	TE-6324P-1	
	Well	6 (152)	TE-635AM-1 ³	
			TE-635AM-2	
			TE-635AP-1	
8 (203)		TE-6352M-1		
		TE-6352P-1		

Table 3: Product Ordering (Part 2 of 2)

Sensor	Mounting Style	Probe Length, in. (mm)	Product Code Number	
Platinum Equivalent	1k ohm averaging ¹	10 ft (3 m)	TE-6327P-1	
		20 ft (6.1 m)	TE-6328P-1	
	100 ohm averaging ¹	10 ft (3 m)	TE-6337P-1	
		20 ft (6.1 m)	TE-6338P-1	
Thermistor (2.2k ohm)	Adjustable	8 (203)	TE-6341A-1	
	Duct	8 (203)	TE-6341P-1	
	Flange (VAV)	4 (102)	TE-634GV-2	
		8 (203)	TE-6341V-2	
	Outdoor air	3 (76)	TE-6343P-1	
	Wall ²	N/A	TE-6344P-1	
	Well	6 (152)	TE-634AM-2	
		8 (203)	TE-6342M-1	
Thermistor (10k ohm) Type II	Adjustable	8 (203)	TE-6361A-1	
	Duct	4 (102)	TE-636GM-1	
		8 (203)	TE-6361M-1	
			TE-6361P-1	
	18 (457)	TE-636JM-1		
		Flange (VAV)	4 (102)	TE-636GV-2
			8 (203)	TE-6361V-2
	Flange (economizer)	2 (51)	TE-6369E-2	
		6 (152)	TE-636ME-2	
		8 (203)	TE-6361E-2	
		12 (305)	TE-636NE-2	
	Flush	N/A	TE-6360F-0	
			TE-6360F-1	
	Outdoor air	3 (76)	TE-6363P-1	
	Strap-mount	3 (76)	TE-636S-1	
	Well	6 (152)	TE-636AM-1 ³	
			TE-636AM-2	
		8 (203)	TE-6362M-1	

- Two TE-6001-8 Element Holders come with the platinum equivalent averaging sensors. Order separately to use with a nickel averaging sensor.
- Order the TE-1800-9600 Mounting Hardware separately to mount the wall unit to a wallbox.
- TE-631AM-1, TE-635AM-1, and TE-636AM-1 include TE-6300-612 Threadless Brass Sensor Holder/Well Adaptor for retrofit to TE-6300W-103 or WZ-1000-5 Thermowells.

Table 4: Optional Accessories and Replacement Parts¹

Product Code Number	Description
F-1000-182	Thermal conductive grease for element wells (8 oz. [0.23 kg])
T-4000-119	Allen head tool for wall mount cover screws (order in multiples of 30)
TE-1800-9600	Mounting hardware for mounting the wall-mount unit to a wall box
TE-6001-8	Averaging sensor mounting bracket (order in multiples of ten)
TE-6001-13	Metal cover and gasket kit (order in multiples of five)
TE-6300-101	12 in. (305 mm) 1k ohm nickel probe (cut to an appropriate length) ²
TE-6300-103	1/2-14 NPT plastic sensor holder without retainer (order in multiples of ten)
TE-6300-105	12 in. (305 mm) 1k ohm platinum Class A probe (cut to an appropriate length) ²
TE-6300-601	8 in. (203 mm) 1k ohm nickel probe
TE-6300-603	3 in. (76 mm) 1k ohm nickel probe
TE-6300-605	1/2-14 NPT threaded plastic sensor holder/well adaptor with retainer (order in multiples of ten)
TE-6300-606	8 in. (203 mm) 2.2k ohm thermistor probe
TE-6300-607	3 in. (76 mm) 2.2k ohm thermistor probe
TE-6300-611	1/2-14 NPT threaded brass sensor holder/well adaptor (order in multiples of ten)
TE-6300-612	Threadless brass sensor holder/well adaptor (order in multiples of ten)
TE-6300-613	IMC kit with metal plugs and clamp connector (order in multiples of ten)
TE-6300-614	Cable tie mounting kit, 0.50 to 2.625 in. (12.7 to 66.7 mm) bundle diameter (order in multiples of ten)
TE-6300-615	Cable tie mounting kit, 11 in. (280 mm) maximum bundle diameter
TE-6300-616	8 in. (203 mm) 1k ohm platinum Class A probe
TE-6300-617	3 in. (76 mm) 1k ohm platinum Class A probe
TQ-6000-1	4 to 20 mA output transmitter for use with the 100 ohm platinum sensor
TE-6300W-101³	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe model TE-63xAM-2
TE-6300W-102³	Thermowell, stainless steel, 2.38 in. (60.5 mm) immersion depth, without thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe model TE-63xAM-2
TE-6300W-103	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, threadless adaptor required, for use with 6 in. (150 mm) probe models TE-63xAM-1 (adaptor included) and TE-63xAP-1 (adaptor included)
TE-6300W-110	Thermowell, stainless steel, 4.50 in. (114.3 mm) immersion depth, without thermal grease, 1/2-14 NPT adaptor required, for use with 8 in. (200 mm) probe models TE-63x2M-1 (adaptor included) and TE-63x2P-1 (adaptor included)

1. For accessory usage, see Table 5, Table 6, and Table 7.

2. Cut 12 in. (305 mm) probes to a minimum of 3 in. (76 mm).

3. Direct-mount thermowells TE-6300W-101 and TE-6300W-102 can be used only with the TE-6300M Sensors.

Table 5: Typical Accessory and Replacement Part Usage for TE-6300M Models

Product Code Number	Description	TE-6311M-1	TE-6312M-1	TE-6315M-1	TE-6316M-1	TE-631AM-1	TE-631AM-2	TE-631GM-1	TE-631JM-1	TE-6351M-1	TE-6352M-1	TE-635AM-2	TE-635GM-1	TE-635JM-1	TE-6361M-1	TE-6362M-1	TE-636AM-2	TE-636GM-1	TE-636JM-1	TE-634AM-2	
		TE-6001-8	Averaging sensor mounting bracket			X	X														
TE-6300-611	1/2-14 NPT threaded brass sensor holder/well adaptor, for use with TE-6300W-110 (replacement part, included with TE-63x2M-1)		X								X					X					
TE-6300-612	Threadless brass sensor holder/well adaptor, for use with TE-6300W-103 (included with TE-631AM-1)					X	X					X					X				X
TE-6300-613	IMC kit with metal plugs and clamp connector	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TE-6300W-101	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe						X					X					X				X
TE-6300W-102	Thermowell, stainless steel, 2.38 in. (60.5 mm) immersion depth, without thermal grease, direct mount, no adaptor required, for use with 6 in. (150 mm) probe						X					X					X				X
TE-6300W-103	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, threadless adaptor required, for use with 6 in. (150 mm) probe (TE-631AM-1 includes adaptor)					X															
TE-6300W-110	Thermowell, stainless steel, 4.50 in. (114.3 mm) immersion depth, without thermal grease, 1/2-14 NPT adaptor required, for use with 8 in. (200 mm) probe (TE-63x2M-1 includes adaptor)		X								X					X					

Table 6: Typical Accessory and Replacement Part Usage for TE-6300P Models

Product Code Number	Description	TE-6311P-1	TE-6312P-1	TE-6313P-1	TE-6314P-1	TE-6315P-1	TE-6316P-1	TE-631AP-1	TE-6324P-1	TE-6327P-1	TE-6328P-1	TE-6337P-1	TE-6338P-1	TE-6341P-1	TE-6343P-1	TE-6344P-1	TE-6351P-1	TE-6352P-1	TE-6353P-1	TE-635AP-1	TE-6361P-1	TE-6363P-1	
		T-4000-119	Allen head tool				X				X							X					
TE-1800-9600	Mounting hardware				X				X							X							
TE-6001-8	Averaging sensor mounting bracket					X	X			X	X	X	X										
TE-6001-13	Metal cover and gasket kit	X	X	X		X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X
TE-6300-101	12 in. (305 mm) 1k ohm nickel probe	X																					
TE-6300-105	12 in. (305 mm) 1k ohm platinum Class A probe																X						
TE-6300-601	8 in. (203 mm) 1k ohm nickel probe	X																					
TE-6300-603	3 in. (76 mm) 1k ohm nickel probe			X																			
TE-6300-605	1/2-14 NPT threaded plastic sensor holder/well adaptor with retainer, for use with TE-6300W-110 (replacement part, included with TE-63xxP-1)	X	X			X	X			X	X	X	X	X			X	X				X	
TE-6300-606	8 in. (203 mm) 2.2k ohm thermistor probe													X									
TE-6300-607	3 in. (76 mm) 2.2k ohm thermistor probe														X								
TE-6300-616	8 in. (203 mm) 1k ohm platinum Class A probe																X						
TE-6300-617	3 in. (76 mm) 1k ohm platinum Class A probe																		X				
TQ-6000-1	4 to 20 mA output transmitter											X	X										
Thermowells																							
F-1000-182	Thermal conductive grease (8 oz. [0.23 kg])		X					X										X	X				
TE-6300W-103	Thermowell, brass with copper bulb, 2.38 in. (60.5 mm) immersion depth, with thermal grease, threadless adaptor required, for use with 6 in. (150 mm) probe (TE-63xAP-1 includes adaptor)							X													X		
TE-6300W-110	Thermowell, stainless steel, 4.50 in. (114.3 mm) immersion depth, without thermal grease, 1/2-14 NPT adaptor required, for use with 8 in. (200 mm) probe (TE-63x2P-1 includes adaptor)	X																X					

Table 7: Typical Accessory and Replacement Part Usage for TE-63xS Models

Product Code Number	Description
F-1000-182	Thermal conductive grease for element wells (8 oz. [0.23 kg])
TE-6300-614	Cable tie mounting kit, 0.50 to 2.625 in. (12.7 to 66.7 mm) bundle diameter (order in multiples of ten)
TE-6300-615	Cable tie mounting kit, 11 in. (280 mm) maximum bundle diameter

Table 8: T-4000 Covers Available for the Wall-Mount TE-63x4P Series

Product Code Number	Horizontal Johnson Controls Logo	Vertical Johnson Controls Logo	Thermometer, with °F/°C Scale	Faceplate/Cover Color
T-4000-2138 ¹				Brushed aluminum/beige
T-4000-2139	X			
T-4000-2140	X		X	
T-4000-2144		X		
T-4000-2639	X			Brown and gold/beige
T-4000-2640	X		X	
T-4000-2644		X		
T-4000-3139	X			Brushed aluminum/white
T-4000-3140	X		X	
T-4000-3144		X		

1. Without Johnson Controls logo

Repair Information

If the TE-6300 Series Temperature Sensor fails to operate within its specifications, replace the unit. For a replacement temperature sensor, see Table 3 and contact the nearest Johnson Controls representative. For a replacement sensor probe for TE-63xxP duct, well, and outdoor-air models, see Table 4.

Technical Specifications

TE-6300 Series Temperature Sensors (Part 1 of 3)

Sensor Reference Resistance	1k ohm nickel	1k ohms at 70°F (21°C)
	1k ohm nickel averaging	
	1k ohm platinum	1k ohms at 32°F (0°C)
	100 ohm platinum averaging	100 ohms at 32°F (0°C)
	1k ohm platinum averaging	1k ohms at 32°F (0°C)
	2.2k ohm thermistor	2,252 ohms at 77°F (25°C)
	10k ohm thermistor	10.0k ohms at 77°F (25°C)
Sensor Accuracy	1k ohm nickel	±0.34F° at 70°F (±0.19C° at 21°C)
	1k ohm nickel averaging	±3.4F° at 70°F (±1.9C° at 21°C)
	1k ohm platinum Class A (TE-635xx)	EN 60751 Class A, ± [0.15 + 0.002 * T °C], ±0.19C° at 21°C (±0.35F° at 70°F)
	100 ohm platinum Class A	
	1k ohm platinum Class B (TE-632xx)	EN 60751 Class B, ± [0.30 + 0.005 * T °C], ±0.41C° at 21°C (±0.73F° at 70°F)
	100 ohm platinum averaging	±1.0F° at 70°F (±0.58C° at 21°C)
	1k ohm platinum averaging	
	2.2k ohm thermistor	±0.36F° (±0.2C°) in the range: 32 to 158°F (0 to 70°C)
10k ohm thermistor	±0.9F° (±0.5C°) in the range: 32 to 158°F (0 to 70°C)	
Sensor Temperature Coefficient (see Table 1)	1k ohm nickel	Approximately 3 ohms/F° (5.4 ohms/C°)
	1k ohm nickel averaging	
	1k ohm platinum	Approximately 2 ohms/F° (3.9 ohms/C°), 3,850 ppm/K
	100 ohm platinum averaging	Approximately 0.2 ohms/F° (0.39 ohms/C°)
	1k ohm platinum averaging	Approximately 2 ohms/F° (3.9 ohms/C°)
	2.2k ohm thermistor	Nonlinear, negative temperature coefficient (NTC)
	10k ohm thermistor	Nonlinear NTC, Johnson Controls Type II
Electrical Connection	TE-63xxE	22 AWG (0.6 mm diameter) x 6 in. (152 mm) long
	TE-63xxM	
	TE-63xxP	
	TE-63xxF	22 AWG (0.6 mm diameter) x 12 ft (3 m) braided copper wires, low voltage insulation, half-stripped ends
	TE-63xxP nickel averaging	18 AWG (1.0 mm diameter) x 6 in. (152 mm) long
	TE-63xS	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable
	TE-63xxA	22 AWG (0.6 mm diameter) x 10 ft (3 m) long plenum-rated cable, with 2-position plug terminal block for 1/4 in. (6.35 mm) external tab terminals on 0.197 in. (5 mm) centers
	TE-63xxV	

TE-6300 Series Temperature Sensors (Part 2 of 3)

Materials	Probes	Nickel averaging: 0.094 in. (2.4 mm) outside diameter (O.D.) copper tubing Nickel averaging adaptor: 0.25 in. (6.35 mm) O.D. brass Platinum averaging probe: 0.19 in. (4.8 mm) aluminum tubing All others: 0.25 in. (6.35 mm) O.D. stainless steel
	TE-63xxA	Mounting adaptor plate and gland: thermoplastic
	TE-63xxF	Flush mount: stainless steel
	TE-63xxM	Enclosure: corrosion-protected steel Well sensor holder: 0.875 in. (22.2 mm) hex brass
	TE-63xxP	Conduit box and shield: rigid thermoplastic Mounting plate: aluminum Sensor holder: rigid thermoplastic Wall mount base plate: corrosion-protected steel Wall mount cover: rigid thermoplastic (white) Wall mount face plate: brushed aluminum
	TE-63xxE	Mounting flange: stainless steel
	TE-63xxV	
Operating Conditions	TE-63xxA	-50 to 140°F (-46 to 60°C)
	TE-63xxF	32 to 104°F (0 to 40°C)
	TE-63xxE	-50 to 220°F (-46 to 104°C)
	TE-63xxM	
	TE-63xxP	Enclosure: -50 to 122°F (-46 to 50°C) Sensor probe: -50 to 220°F (-46 to 104°C)
	TE-63xS	Sensor probe: -50 to 220°F (-46 to 104°C)
	TE-63xxV	Wire harness: -50 to 122°F (-46 to 50°C)
Shipping Weight	TE-63xxA	0.2 lb (0.09 kg)
	TE-63xxE	
	TE-63xxF	0.25 lb (113.4 kg)
	TE-63xxM	Duct averaging: 0.9 lb (0.41 kg) Duct mount: 0.4 lb (0.18 kg) Well insertion: 0.5 lb (0.23 kg)
	TE-63xxP	Duct averaging: 0.5 lb (0.23 kg) Duct mount: 0.4 lb (0.18 kg) Outdoor air: 0.5 lb (0.23 kg) Wall mount: 0.2 lb (0.09 kg) Well insertion: 0.35 lb (0.16 kg)
	TE-63xS	Strap mount: 0.2 lb (0.09 kg)
	TE-63xxV	Duct averaging: 0.7 lb (0.32 kg) Duct mount: 0.2 lb (0.09 kg)

TE-6300 Series Temperature Sensors (Part 3 of 3)

Dimensions (H x W x D)	TE-63xxA		2.17 in. (55 mm) diameter plus 4 or 8 in. (102 or 203 mm) element
	TE-63xxE	Duct mount:	2.5 x 1.50 in. (57 x 38 mm) plus 2, 6, 8, or 12 in. (51, 152, 203, or 305 mm) element
	TE-63xxF	Flush mount:	4-1/2 x 2-3/4 in. (114 x 70 mm)
	TE-63xxM	Duct averaging:	1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 8 or 17 ft (2.4 or 5.2 m) element
		Duct mount:	1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 4, 8, or 18 in. (102, 203, or 457 mm) element
		Well insertion:	1.87 x 1.87 x 1.80 in. (47.5 x 47.5 x 45.8 mm) plus 6 or 8 in. (152 or 203 mm) element
	TE-63xxP	Duct averaging:	5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 8, 10, 17, or 20 ft (2.4, 3.0, 5.2, or 6.1 m) element
	Duct mount:	5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (152 or 203 mm) probe	
	Outdoor air:	5.97 x 3.47 x 4.46 in. (152 x 88 x 113 mm)	
	Wall mount:	2.09 x 3.12 x 1.80 in. (53 x 79 x 46 mm)	
	Well insertion:	5.97 x 1.38 x 2.75 in. (152 x 35 x 70 mm) plus 6 or 8 in. (152 or 203 mm) probe	
TE-63xS	Strap mount:		0.25 in. (6.4 mm) diameter x 3.00 in. (76 mm) long
TE-63xxV	Duct averaging:		2.25 x 1.50 in. (57 x 38 mm) plus 8 or 17 ft (2.4 or 5.2 m) element
	Duct mount:		2.25 x 1.50 in. (57 x 38 mm) plus 4 or 8 in. (102 or 203 mm) element

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.



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